

### **REMARKS**

This Amendment is submitted under 37 C.F.R. § 1.111 in response to the Office Action mailed April 22, 2004, wherein claims 17 – 34 were rejected under 35 U.S.C. §103 as being obvious in view of various combinations of prior art references, discussed below. In addition, claim 17 was objected to due to a minor informality. Claims 1 – 16 and 35 were previously withdrawn in response to a restriction requirement. In this response, claims 17, 20 – 23 and 27 – 29 have been amended to overcome the rejection, to improve clarity and to correct the informality noted by the examiner. Withdrawn claims 1 – 16 and 35 have been cancelled. Claims 17 – 34 remain pending. Reexamination and reconsideration are respectfully requested in view of the foregoing amendments and the following remarks.

### **Claim Amendments**

As noted, various amendments to the claims have been made to improve the wording thereof. Independent claim 17 has been reworded to specific that the "prefabricated integrated electronic component" is "prefabricated prior to being secured in a cavity" in the first substrate surface. In addition, the recitation of first and second via structures is believed to give claim 17 greater clarity. The language regarding the via structures has also been improved in claims 20 and 21. Similarly, the wording of claims 22, 23, 27, 28 and 29 has been made more precise. It is submitted that no new matter has been added.

### **Traversal Of Claim Rejections**

Claim 17 was rejected under § 103 as being obvious over McClanahan et al, U.S. Pat. No. 5,396,397, in view of Enomoto, U.S. Pat. No. 6,320,140. Claim, as amended, requires that the "integrated electronic component" be "prefabricated" *prior to* being embedded or secured within a cavity in the substrate. Claim 17 further requires that the prefabricated integrated electronic component be secured to the substrate using an adhesive. Neither McClanahan et al. nor Enomoto teach or suggest separately prefabricating an integrated electronic component and, after it has fabricated, securing it to a cavity in a substrate using an adhesive.

McClanahan et al teaches as follows in the "Detailed Description of the Disclosure":

"Dielectric field control layers in accordance with the invention are implemented in a unitized multilayer circuit structure that is utilized *for*

*interconnecting various discrete circuits mounted on the outside thereof.* The unitized multilayer circuit structure is formed from a plurality of insulating layers (comprising ceramic, for example), conductive traces disposed between the insulating layers, and conductive vias formed in the layers which together with any buried elements (e.g., elements formed on the top of an insulating layer and covered by an overlying insulating layer) are processed to form an integrally fused unitized multilayer structure. *The discrete circuits are typically mounted and electrically connected on the outside of the unitized multilayer circuit structure after the unitizing fabrication.* (Col. 2, line 59 – col. 3, line 5; emphasis added.)

The McClanahan patent teaches forming certain types of capacitors and other components as part of the process of fabricating their multilayer structure, within their structure. The examiner appears to consider these structures to be “integrated electronic components.” However, claim 17 has been clarified to require that the “prefabricated integrated electronic component” is formed prior being secured to the substrate by an adhesive. There is no such teaching in McClanahan et al.

Enomoto teaches using adhesive *layers* for the purpose of attaching substrates in fabricating multilayer printed circuit boards. It does not suggest or teach using adhesive for attaching prefabricated components so that they are embedded within a substrate. Thus, there is no reason why someone would look to the teachings of Enomoto for methods of embedding components within a substrate.

It is further noted that, contrary to the examiner’s assertion, Enomoto does not teach adhering a conductor circuit to a substrate using an adhesive layer. Rather, Enomoto teaches forming a conductor circuit on one side of a substrate and forming an adhesive layer on the *opposite* side of the substrate. (See, e.g., col. 4, lines 25 – 29; col. 5, lines 4 – 19.) Thus, the adhesive layer is not used to adhere the conductor circuit to the substrate. However, the adhesive layer is then used to join the substrate (with the conductor circuit already formed thereon) to another, similarly constructed, substrate.

Applicant respectfully submits that claim 17, as amended, is not obvious over McClanahan in view of Enomoto.

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Claims 17 – 34 were rejected under § 103 as being obvious over Swarup, U.S. Pat. No. 6,170,154 in view of Enomoto. Claim 17, as amended requires that the "prefabricated integrated electronic component" be prefabricated *before it is secured* in a cavity in the substrate using an adhesive. Again, neither Swarup nor Enomoto teach or suggest prefabricating an integrated electronic component and, thereafter, securing it to a substrate. Specifically, both references teach fabricating electronic components *in situ* as a multilayer substrate is formed. Neither reference teaches securing electronic components, of any sort, within cavities.

Moreover, as described above, Enemoto does not teach attaching a component to a substrate using an adhesive. Rather, it teaches using adhesive to join layered substrates together.

Insofar, as claim 17 is clearly allowable over the combination of Swarup and Enomoto, the remaining claims, all of which are dependent on claim 17, are similarly allowable.

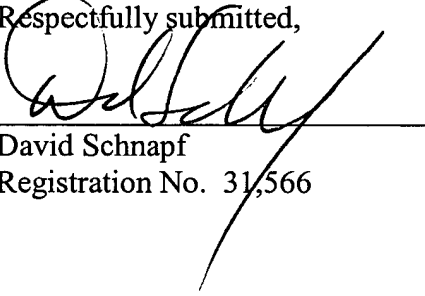
### **CONCLUSION**

In view of the amendments and remarks made above, applicant respectfully submits that the application is in condition for allowance and action to that end is respectfully solicited. The examiner is invited to telephone the undersigned at the number listed below if it is believed that a telephone interview would advance the prosecution of this matter.

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Respectfully submitted,



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